

THE OCCURRENCE OF *OTOZAMITES* IN SOUTH-EASTERN VICTORIA

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Abstract

Leaf impressions referable to the genus *Otozamites* are described from Victoria for the first time.

Introduction

The range of the genus *Otozamites* (Braun), which has not hitherto been convincingly recorded from Victoria (Medwell 1954, Walkom 1921), is extended by this description of specimens from the Boola Boola Forest in S.E. Victoria. Two localities closely related stratigraphically in fine-medium grained sandstone contain plant impressions including the *Otozamites* specimens described below. Unfortunately preservation is poor with cuticle absent. A well-exposed Mesozoic section striking NE. and dipping S.E. at about 15° and overlying steeply dipping Palaeozoics, consists predominantly of sandstones with a basal conglomerate. Occasional mudstone lenses within the sandstone contain a much larger flora than the sandstone.

CYCADOPHYTA

Order CYCADEOIDALES

Otozamites sp. indet.

(Pl. VII, fig. 1-4; Fig. 1)

DESCRIPTION: The material consists of leaf fragments bearing pinnae with prominent auricles, and with margins sub-parallel to the apex where the lower tapers abruptly to meet a relatively straight upper, to form an acute tip. Venation, distinguishable in few pinnae, consists of 5-6 gently diverging veins entering the whole pinna base. Branching of veins begins half way along the pinna, each arm diverging at about 15°.

DIMENSIONS: Length of leaves—maximum 60 mm (fragments only), average 40 mm; width—maximum 20 mm, average 10 mm. Length of pinnae—average 5 mm; width—average 1.7 mm.

SPECIMENS IDENTIFIED: Reg. No. Geological Survey of Victoria—57745, 57746, 57747, 57748, 57750, 57780, 57781.

LOCALITY: Boola Boola Forest, Locality No. 1 Coordinates Misc. Topo. 83 sheet 4, 3007N, 4471E.

ROCK TYPE: Fine—medium grained yellow brown sandstone.

DISCUSSION: Two genera *Otozamites* and *Ptilophyllum* Morris show to greater or lesser extent the characters described above. The boundary between these genera is somewhat arbitrary (Harris 1949, Jacob and Jacob 1954) and anatomical evidence is lacking, but the material is classified in *Otozamites* because of prominent

auriculated pinnae bases (Pl. VII, fig. 1; Fig. 1) and radiating bifurcating veins (Pl. VII, fig. 3). Reg. No. 57750 (Pl. VII, fig. 4) shows the basal part of the leaf with base somewhat obscured. Both genera sometimes possess basal pinnae varying greatly from those on the remainder of the leaf.

Otozamites anglica (Seward) Harris and *O. bengalensis* Oldham and Morris are most like the Boola Boola material, but the latter differs markedly in gross form and has more veins in the pinna base. The venation of the former is similar to the Victorian specimens, but the pinnae are more widely set apart and of oblanceolate shape. It is felt that the poor state of preservation prevents reliable determination beyond generic status.

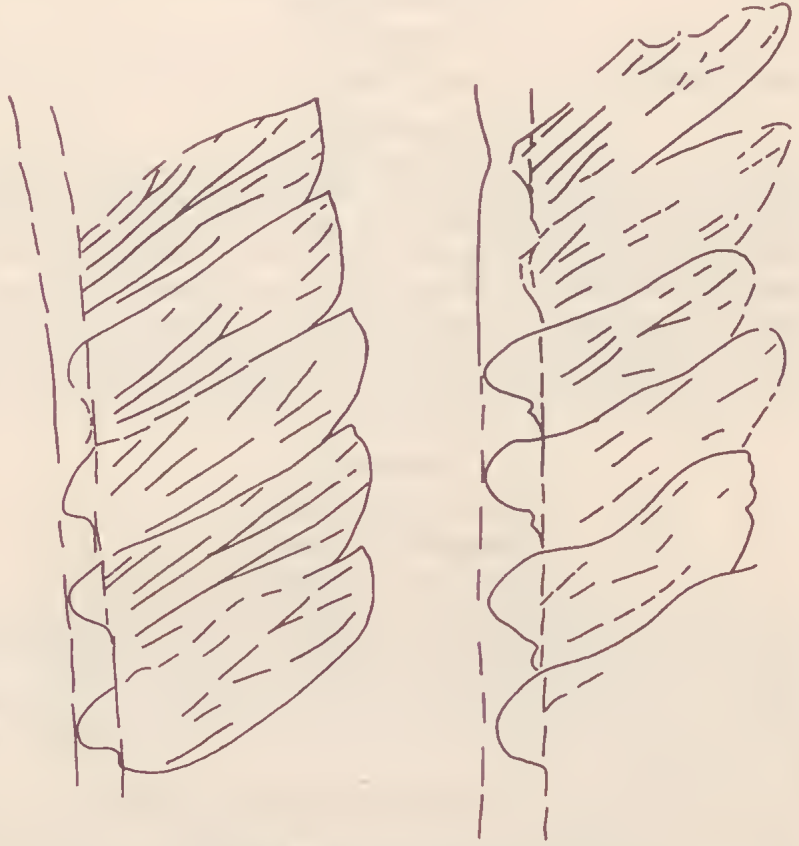


Fig. 1—*Otozamites* sp. indet. Reg. No. 57748 $\times 6$.
Pinnae showing auriculation and remains of venation. Left, from upper portion of leaf.
Right, from lower portion of leaf.

The geographically nearest species *O. bengalensis* is from the Mt Babbage, South Australian beds, dated as Lower Cretaceous (Glaessner and Rao 1955). Medwell (1954) placed all E. Victorian Mesozoic floras in the Lower Jurassic without a critical study of individual assemblages. Cookson and Dettman (1958) on microfloral studies placed beds, higher up the sequence than the *Otozamites* flora, in the Lower Cretaceous.

Ptilophyllum ? sp.

(Pl. VII, fig. 5)

DESCRIPTION: Several fragments, with gross form and pinna base apparently well delineated, show no trace of auriculation. Venation, however, is obscure and no cuticle is preserved.

DIMENSIONS: Length of pinnae—average 4 mm; width—average 1.2 mm.

SPECIMENS TENTATIVELY IDENTIFIED: Reg. No. 57775, 57784, 57783.

LOCALITY: As *Otozamites* sp. indet. above with the exception of Reg. No. 57783 and 57784 from Locality 27 (same coordinates).

ROCK TYPE: As *Otozamites* sp. indet. above.

DISCUSSION: These fragments are tentatively classified as *Ptilophyllum* because there is no trace of auriculation of the pinna base. However, preservation is poor and in view of the intergradation between this species and *Otozamites* identification cannot be carried further.

The *Otozamites* flora is interesting because of its absence from other well-sampled Victorian localities, and apparent absence from nearby mudstone beds. These latter, in contrast, contain large unbroken fronds and an extensive array of delicate fossils. A wide range of explanations can cover this, as the deposition of plant remains, particularly under rapid depositional conditions as envisaged by Philip (1958), is a highly complex subject (Black 1929), depending on vicissitudes of sedimentation and palaeoecology.

Acknowledgements

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Explanation of Plate

PLATE VII

Fig. 1—*Otozamites* sp. indet. Reg. No. 57748 x 3.

Fig. 2—*Otozamites* sp. indet. Reg. No. 57746 x 2.

Fig. 3—*Otozamites* sp. indet. Reg. No. 57746 x 7.5 (Immersed in xylol). Pinnae showing venation.

Fig. 4—*Otozamites* sp. indet. Reg. No. 57750 x 5. Base of leaf.

Fig. 5—*Ptilaphyllum*? sp. Reg. No. 57775 x 2.